IN THE CLAIMS

Please amend the claims as follows. Any additional differences between the previous state of the claims and the claims below are unintentional and in the nature of typographical errors.

1.   (Currently Amended)   A method, comprising:

receiving a projection associated with a first signal and a second signal, the second signal comprising a first portion associated with the first signal and a second portion not associated with the first signal, the projection at least partially isolating the first portion of the second signal from the second portion of the second signal;

identifying one or more parameters of a model using at least a portion of the projection, the model associating the first signal and the first portion of the second signal; and

generating and storing a model associated with ~~outputting~~ the one or more model parameters ~~for use in processing one or more signals~~;

wherein the projection comprises an upper triangular matrix having two diagonals that divide the upper triangular matrix into four sections, a first of the diagonals starting at an upper left corner of the upper triangular matrix and traveling down and right in the upper triangular matrix, a second of the diagonals starting at a lower left corner of the upper triangular matrix and traveling up and right in the upper triangular matrix; and

wherein identifying the one or more model parameters comprises using one or more defined areas in the upper triangular matrix, the one or more defined areas located in a single one

of the sections of the upper triangular matrix ~~between the first and second diagonals~~.

2.   (Original)   The method of Claim 1, wherein identifying the one or more model

parameters comprises:

identifying one or more pole candidates and one or more model candidates using the

projection; and

selecting at least one of the one or more pole candidates and selecting at least one of the

one or more model candidates as the model parameters.

3.   (Previously Presented)   The method of Claim 1, wherein:

the upper triangular matrix has a plurality of values along the first diagonal, each value

being greater than or equal to zero.

4.   (Previously Presented)   The method of Claim 1, wherein identifying the one

or more model parameters comprises:

defining the one or more defined areas in the upper triangular matrix; and

identifying one or more pole candidates using the one or more defined areas, the one or

more model parameters comprising at least one of the one or more pole candidates.

5.   (Previously Presented)   The method of Claim 4, wherein:

the diagonals divide the upper triangular matrix into upper, lower, left, and right sections;

and

the one or more defined areas in the upper triangular matrix are located in the right

section of the upper triangular matrix.

6.   (Previously Presented)   The method of Claim 1, wherein:

the one or more defined areas in the upper triangular matrix comprise one or more first

defined areas; and

identifying the one or more model parameters further comprises:

        defining one or more second areas in the upper triangular matrix; and

        identifying one or more model candidates using the one or more second defined

areas, the one or more model parameters comprising at least one of the one or more model

candidates.

7.   (Previously Presented)   The method of Claim 6, wherein each of the one or

more second defined areas represents a matrix centered along one of the diagonals of the upper

triangular matrix.

8.   (Previously Presented)   The method of Claim 7, wherein:

each matrix centered along one of the diagonals of the upper triangular matrix comprises a backward column Hankel matrix; and

identifying the one or more model candidates comprises rewriting each backward column Hankel matrix as a forward column Hankel matrix.

9.   (Original)   The method of Claim 4, wherein:

defining the one or more areas in the upper triangular matrix comprises defining multiple areas in the upper triangular matrix; and

identifying the one or more model parameters comprises identifying one or more model parameters for each of the defined areas in the upper triangular matrix.

10.   (Original)   The method of Claim 9, wherein:

the one or more model parameters associated with different defined areas in the upper triangular matrix are different; and

identifying the one or more model parameters further comprises selecting the one or more model parameters associated with a specific one of the defined areas in the upper triangular matrix.

11.   (Previously Presented)   The method of Claim 10, wherein:

the upper triangular matrix comprises a first upper triangular matrix; and

selecting the one or more model parameters associated with the specific one of the defined areas in the first upper triangular matrix comprises:

for each defined area in the first upper triangular matrix, generating a matrix comprising a forward column Hankel matrix based on a prediction error, the prediction error associated with the one or more model parameters that are associated with that defined area;

for each generated matrix, performing canonical QR-decomposition on the matrix to form a second upper triangular matrix, each second upper triangular matrix having an upper right portion denoted R_{E3};

for each second upper triangular matrix, identifying a value for $\left\| R_{E3} \right\|_2^2$; and

selecting the one or more model parameters associated with the defined area having the second upper triangular matrix with a smallest value for $\left\| R_{E3} \right\|_2^2$.

12.   (Currently Amended)   An apparatus, comprising:

at least one input receiving a first signal and a second signal, the second signal comprising a first portion associated with the first signal and a second portion not associated with the first signal; and

at least one processor:

generating a projection associated with the first and second signals and identifying one or more parameters of a model associating the first signal and the first portion of the second signal using at least a portion of the projection, the projection at least partially isolating the first portion of the second signal from the second portion of the second signal; and

generating and storing a model associated with outputting the one or more model parameters for use in processing one or more signals;

wherein the projection comprises an upper triangular matrix having two diagonals that divide the upper triangular matrix into four sections, a first of the diagonals starting at an upper left corner of the upper triangular matrix and traveling down and right in the upper triangular matrix, a second of the diagonals starting at a lower left corner of the upper triangular matrix and traveling up and right in the upper triangular matrix; and

wherein the at least one processor identifies the one or more model parameters using one or more defined areas in the upper triangular matrix, the one or more defined areas located in a single one of the sections of the upper triangular matrix between the first and second diagonals.

13.   (Original)   The apparatus of Claim 12, wherein the at least one processor is operable to identify the one or more model parameters by:

identifying one or more pole candidates and one or more model candidates using the projection; and

selecting at least one of the one or more pole candidates and selecting at least one of the one or more model candidates as the model parameters.

14.   (Previously Presented)   The apparatus of Claim 12, wherein:

the upper triangular matrix has a plurality of values along the first diagonal, each value being greater than or equal to zero.

15.   (Previously Presented)   The apparatus of Claim 12, wherein the at least one processor is operable to identify the one or more model parameters by:

defining the one or more areas in the upper triangular matrix; and

identifying one or more pole candidates using the one or more defined areas, the one or more model parameters comprising at least one of the one or more pole candidates.

16.   (Previously Presented)   The apparatus of Claim 12, wherein:

the one or more defined areas in the upper triangular matrix comprise one or more first defined areas; and

the at least one processor is operable to identify the one or more model parameters further by:

defining one or more second areas in the upper triangular matrix; and

identifying one or more model candidates using the one or more second defined areas, the one or more model parameters comprising at least one of the one or more model candidates.

17.   (Previously Presented)   The apparatus of Claim 16, wherein:

each of the one or more second defined areas represents a matrix centered along one of the diagonals of the upper triangular matrix;

each matrix centered along one of the diagonals of the upper triangular matrix comprises a backward column Hankel matrix; and

the at least one processor is operable to identify the one or more model candidates by rewriting each backward column Hankel matrix as a forward column Hankel matrix.

18.   (Original)   The apparatus of Claim 15, wherein:

the at least one processor is operable to define the one or more areas in the upper triangular matrix by defining multiple areas in the upper triangular matrix; and

the at least one processor is operable to identify the one or more model parameters by identifying one or more model parameters for each of the defined areas in the upper triangular matrix.

19.   (Previously Presented)   The apparatus of Claim 18, wherein:

the upper triangular matrix comprises a first upper triangular matrix;

the one or more model parameters associated with different defined areas in the first

upper triangular matrix are different; and

the at least one processor is operable to select the one or more model parameters

associated with a specific one of the defined areas in the upper triangular matrix by:

for each defined area in the first upper triangular matrix, generating a matrix

comprising a forward column Hankel matrix based on a prediction error, the prediction error

associated with the one or more model parameters that are associated with that defined area;

for each generated matrix, performing canonical QR-decomposition on the matrix

to form a second upper triangular matrix, each second upper triangular matrix having an upper

right portion denoted R_{E3};

for each second upper triangular matrix, identifying a value for $\|R_{E3}\|_2^2$; and

selecting the one or more model parameters associated with the defined area

having the second upper triangular matrix with a smallest value for $\|R_{E3}\|_2^2$.

20.   (Currently Amended)   A computer program embodied on a computer readable medium, the computer program comprising:

computer readable program code that receives ~~for receiving~~ a projection associated with a first signal and a second signal, the second signal comprising a first portion associated with the first signal and a second portion associated with at least one disturbance, the projection at least partially isolating the first portion of the second signal from the second portion of the second signal;

computer readable program code that identifies ~~for identifying~~ one or more parameters of a model associating the first signal and the first portion of the second signal using at least a portion of the projection; and

computer readable program code ~~for outputting~~ that generates and stores a model associated with the one or more model parameters ~~for use in processing one or more signals~~;

wherein the projection comprises an upper triangular matrix having two diagonals that divide the upper triangular matrix into four sections, a first of the diagonals starting at an upper left corner of the upper triangular matrix and traveling down and right in the upper triangular matrix, a second of the diagonals starting at a lower left corner of the upper triangular matrix and traveling up and right in the upper triangular matrix; and

wherein the computer readable program code that identifies ~~for identifying~~ the one or more model parameters comprises computer readable program code that uses ~~for using~~ one or more defined areas in the upper triangular matrix, the one or more defined areas located in a single one of the sections of the upper triangular matrix ~~between the first and second diagonals~~.

-12-

21.   (Currently Amended)   The computer program of Claim 20, wherein the computer readable program code <u>that identifies</u> ~~for identifying~~ the one or more model parameters comprises ~~computer readable program code for~~:

<u>computer readable program code that identifies</u> ~~identifying~~ one or more pole candidates and one or more model candidates using the projection; and

<u>computer readable program code that selects</u> ~~selecting~~ at least one of the one or more pole candidates and selecting at least one of the one or more model candidates as the model parameters.

22.   (Previously Presented)   The computer program of Claim 20, wherein:

the upper triangular matrix has a plurality of values along the first diagonal, each value being greater than or equal to zero.

23.   (Currently Amended)   The computer program of Claim 20, wherein:

the one or more defined areas in the upper triangular matrix comprise one or more first defined areas; and

the computer readable program code that identifies ~~for identifying~~ the one or more model parameters comprises ~~computer readable program code for~~:

computer readable program code that defines ~~defining~~ the one or more first areas in the upper triangular matrix;

computer readable program code that identifies ~~identifying~~ one or more pole candidates using the one or more first defined areas;

computer readable program code that defines ~~defining~~ one or more second areas in the upper triangular matrix; and

computer readable program code that identifies ~~identifying~~ one or more model candidates using the one or more second defined areas, the one or more model parameters comprising at least one of the one or more pole candidates and at least one of the one or more model candidates.

24.   (Currently Amended)   The computer program of Claim 23, wherein:

each of the one or more second defined areas represents a matrix centered along one of

the diagonals of the upper triangular matrix;

each matrix centered along one of the diagonals of the upper triangular matrix comprises

a backward column Hankel matrix; and

the computer readable program code that identifies ~~for identifying~~ the one or more model

candidates further comprises computer readable program code that rewrites ~~for rewriting~~ each

backward column Hankel matrix as a forward column Hankel matrix.

25.   (Currently Amended)   The computer program of Claim 23, wherein:

the computer readable program code that defines ~~for defining~~ the one or more first areas

in the upper triangular matrix defines multiple first areas in the upper triangular matrix; and

the computer readable program code that identifies ~~for identifying~~ the one or more model

parameters comprises computer readable program code that identifies ~~for identifying~~ one or more

model parameters for each of the first defined areas in the upper triangular matrix.

26. (Currently Amended)   The computer program of Claim 25, wherein:

the upper triangular matrix comprises a first upper triangular matrix;

the one or more model parameters associated with different first defined areas in the first upper triangular matrix are different; and

the computer readable program code that identifies ~~for identifying~~ the one or more model parameters further comprises computer readable program code that selects ~~for selecting~~ the one or more model parameters associated with a specific one of the first defined areas in the first upper triangular matrix.

27.   (Currently Amended)   The computer program of Claim 26, wherein the computer readable program code that selects ~~for selecting~~ the one or more model parameters associated with the specific one of the first defined areas comprises ~~computer readable program code for~~:

computer readable program code that, for each first defined area in the first upper triangular matrix, generates ~~generating~~ a matrix comprising a forward column Hankel matrix based on a prediction error, the prediction error associated with the one or more model parameters that are associated with that first defined area;

computer readable program code that, for each generated matrix, performs ~~performing~~ canonical QR-decomposition on the matrix to form a second upper triangular matrix, each second upper triangular matrix having an upper right portion denoted R_{E3};

computer readable program code that, for each second upper triangular matrix, identifies ~~identifying~~ a value for $\left\| R_{E3} \right\|_2^2$; and

computer readable program code that selects ~~selecting~~ the one or more model parameters associated with the first defined area having the second upper triangular matrix with a smallest value for $\left\| R_{E3} \right\|_2^2$.

28.   (Previously Presented)   The method of Claim 1, wherein the projection at least partially isolates the first portion of the second signal from the second portion of the second signal in an orthogonal space.

29. (Currently Amended) The apparatus of Claim 12, wherein the at least one processor is <u>further</u> operable to ~~output the one or more model parameters for use in processing one or more signals by: storing the one or more model parameters; and using~~ <u>use</u> the one or more ~~stored~~ model parameters <u>associated with the stored model</u> to de-noise the second signal.

30. (Previously Presented) The method of Claim 1, wherein:

the first diagonal extends from the upper left corner to a lower right corner of the upper triangular matrix; and

the second diagonal extends from the lower left corner to an upper right corner of the upper triangular matrix.

31. (New) The method of Claim 1, further comprising:

controlling at least a portion of a process using the model.